

# **TANDBERG**

## TCD 440 A

### Circuit Diagrams with Alignment Instructions

Mechanical adjustments, see Service Manual for TCD 330, Ordering No. 714021



## Electrical adjustments for the TCD 440A

### General

Before adjusting, the tape path must be cleaned and demagnetized. It is necessary that the tape path is correctly adjusted, consult the service manual for the TCD 330, part No. 714021.

Carry out the adjustments in the order described because the adjustments affect each other. Remove the top panel and the base panel.

### Equipment required

- 2 millivoltmeters
- Audio signal generator
- Frequency counter
- Distortion meter
- Wow and flutter meter
- Tandberg test cassettes:
  - No. 21 (Speed check, 1000 Hz)
  - No. 22 (Wow and flutter check, 3150 Hz)
  - No. 23 (Azimuth adj. playb. head, 6300 Hz)
  - No. 24 (Playback level adj., 1000 Hz)
- Measuring cassettes:
  - Maxell UD XL I (Type I)
  - Maxell UD XL II (Type II)
  - Fuji Metal or TDK Metal MA-R (Type IV).

Before adjusting, set the buttons to:

- MPX-FILTER (situated at the back of the deck) to OFF.
- Dolby NR.\* to Off.
- Output Level controls to maximum.

Before adjusting, fold out page 5.

### Oscillator

The oscillator frequency is between 80 and 100 kHz. The voltage measured on the erase head should be between 7 and 9 volts.

\* The word "Dolby" is registered trade mark of Dolby Laboratories Inc., U.S.A.  
NR stands for Noise Reduction.

### Bias traps

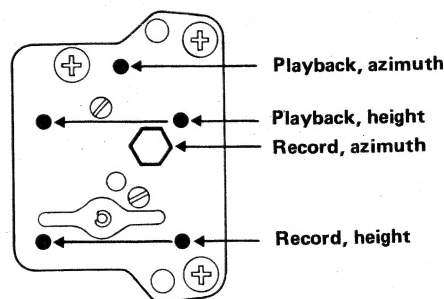
Measure with a millivoltmeter on pin L and R on the oscillator board (see figure) and adjust L1501 and L1601 to minimum reading on the millivoltmeter.

### Sensitivity adjustment

- Set the Monitor button to Source position, and Input and Output Level controls to maximum.
- Apply 8 mV, 1000 Hz to the RADIO socket (DIN) or 80 mV, 1000 Hz to the INPUT sockets (Phono) from the audio signal generator.
- Adjust the SENSITIVITY ADJ. potentiometers R101/R201 to obtain 775 mV measured on a millivolt-meter connected to the Dolby encoder output TP1 and TP2 on the Main board, see figure.
- Move the measure probe to the Dolby decoder output R1303 and R1403 on the Dolby board, see figure.
- Adjust the SOURCE LEVEL ADJ. potentiometers R118/R218 to obtain 775 mV.
- Check the frequency response in Source.

### Azimuth adjustment, playback level

- Insert a Tandberg test cassette No. 23 or a standard azimuth cassette.
- Set the Monitor button to Tape and connect a millivoltmeter to each channel of the OUTPUT sockets.
- Press the Play button. Adjust the playback azimuth screws shown in the figure to obtain maximum reading on each channel.



Adjustments screws for the heads

### Playback level and meter adjustment

- Insert test cassette No. 24.
- Connect a millivoltmeter to each channel of the Dolby decoder output shown in the figure.
- Adjust the PLAYBACK LEVEL ADJ. potentiometers R119/R219 until you read 775 mV on each channel.

When the playback level is correct, adjust the level meter to 0 dB with PLAYBACK METER ADJ. R114 and R214.

### Azimuth and height, record head

- Set the Bias Selector to I and press the button marked Tape Selector Type I.
- Use Maxell UD XL I or an equivalent Type I tape.
- Apply 1000 Hz to the INPUT sockets both channels.
- Set the Monitor button to Tape and connect a millivoltmeter to the OUTPUT sockets both channels.

**NOTE!** The record height screws must be adjusted by equal amounts to ensure that the head parallelism does not change.

- Press the Record button and turn the two record head height screws shown in the figure by equal amounts (the same number of degrees) to obtain the maximum reading on both channels of the OUTPUT sockets, or the best compromise.
- Adjust the azimuth (15 kHz) and the height alternatively, until the head sits correctly.
- Azimuth can also be adjusted with the built-in control oscillator (10 kHz).

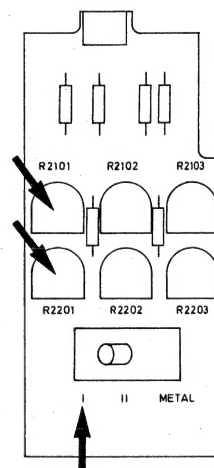
### Overall frequency response with Type I tape (bias)

- Set the Monitor button to Tape and press the Tape Selector Type I button.
- Apply 1000 Hz from the signal generator to one of the inputs (RADIO socket or INPUT sockets).
- Reduce the level at the signal generator by 35 dB or reduce the level by a similar amount on the Input Level controls.
- Press the Record button, and adjust the BIAS ADJ. TYPE I TAPE R2101 and R2201 (see figure) to obtain maximum reading at the outputs.
- Sweep the audio generator through the full frequency range and check that the response curve is correct.

**NOTE!** Remember the azimuth adjustment on the record head.

- If necessary, adjust the curve with R2101 and R2201 to obtain correct response,  $\pm 3$  dB, 20 to 20000 Hz.

Bias adj. pots.  
for Type I tape



*Bias adjustment board, seen from the component side*

### Adjusting the record current (Source/Tape) Type I tape

- Use the same input level as for the bias adjustment ( $-35$  dB) and 1000 Hz.
- Adjust the record current by means of the REC. LEVEL ADJ. potentiometers R108 and R208 to obtain the same output level for both positions on the Monitor button.
- Then depress the Dolby NR. button and check the overall frequency response.

### Overall frequency response with Type II tape (bias)

- Use the same procedure as for the Type I tape.
- Insert a Maxell UD XL II or an equivalent Type II tape.
- Press the Tape Selector Type II button, set the Bias Selector to II position and press the Record button.

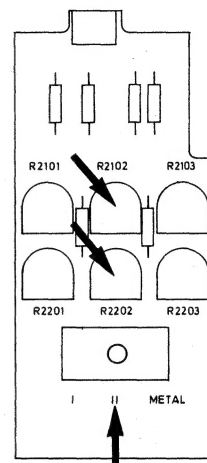
**NOTE!** Remember the azimuth adjustment on the record head.

- Check the frequency response, and if necessary, adjust the BIAS ADJ. TYPE II TAPE R2102 and R2202 (see figure) to obtain the correct response,  $\pm 3$  dB, 20 to 20000 Hz.

### Adjusting the record current (Source/Tape) Type II tape

- Use the same input level as for the bias adjustment ( $-35$  dB) and 1000 Hz.
- Adjust the record current by means of the REC. LEVEL ADJ. potentiometers R109 and R209 to obtain the same output level for both positions on the Monitor button.

**Bias adj. pots.  
for Type II tape**



*Bias adjustment board, seen from the component side*

### Overall frequency response with Metal tape

- Use the same procedure as for Type I tape.
- Insert a Fuji Metal or TDK MA-R (Type IV) tape.
- Set the Bias Selector to Metal position. Press both Tape Selector buttons.

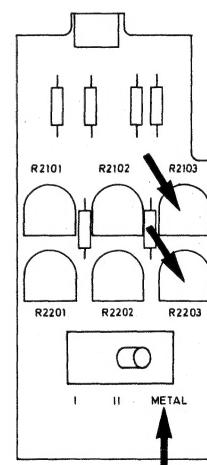
**NOTE!** Remember the azimuth adjustment on the record head.

- Press the Record button.
- Check the frequency response, and if necessary, adjust BIAS ADJ. METAL TAPE R2103 and R2203 (see figure) to obtain the correct response,  $\pm 3$  dB, 20 to 20000 Hz.

### Adjusting the record current (Source/Tape) Metal tape

- Use the same input level as for the bias adjustment ( $-35$  dB) and 1000 Hz.
- Adjust the record current by means of the REC. LEVEL ADJ. R142 and R242 to obtain same output level for both positions on the Monitor button.

**Bias adj. pots.  
for Type IV (Metal) tape**



*Bias adjustment board, seen from the component side*



### Level meters adjustment, record

- Use Type I tape.
  - Set the Bias Selector to I and press the Tape Selector Type I button.
  - Set the Monitor button to Tape position.
- NOTE!** Remember the azimuth adjustment on the record head.
- Apply 1000 Hz to the INPUT sockets (both channels).
  - Press the Record button and adjust the Input Level controls for 1.5 volt reading on the OUTPUT sockets.
  - Adjust the REC. METER ADJ. potentiometers R113 and R213 to obtain 0 dB on the level meters.

### DYNEQ adjustment

When the level meters are correct, reduce the level on the audio generator with 10dB. Set the generator to 15 kHz. Adjust with the DYNEQ adjustment R710 and R810, to — 4dB deflection on the level meters.

### Distortion

Record 1000 Hz at 0 dB deflection on the meters. The max. distortion for record/playback are:  
3% with Type IV tape (Metal tape).  
1% with Type I and Type II tapes.

### Erase test

Record 1000 Hz at 0 dB deflection on the meters. Record again to erase the 1000 Hz signal and play back to ensure that the signal cannot be heard.

### Azimuth meter adjustment

- Set the built-in oscillator to ON.
- Set the Output Level controls to maximum.
- Insert a Type I tape (Maxell UD XL I) and press the Record button.

**NOTE!** Remember the azimuth adjustment on the record head.

- Adjust R223 AZIMUTH METER ADJ. to approximately — 3 dB deflection on the right meter.
- Check also that the meter deflection with a Type IV tape (Metal) is within the meter scale.

**NOTE!** Remember the azimuth adjustment on the record head.

### Speed check

Play back Tandberg test cassette No. 21 (Speed check 1000 Hz) and measure with a frequency counter on the OUTPUT sockets:

$< \pm 0.5\%$  (995 to 1005 Hz).

If necessary, adjust to correct speed with R2008 SPEED ADJ. on the motor control board.

### Wow and flutter check

Play back a Tandberg test cassette No. 22 (3150 Hz) and measure with a wow and flutter meter on the OUTPUT sockets:

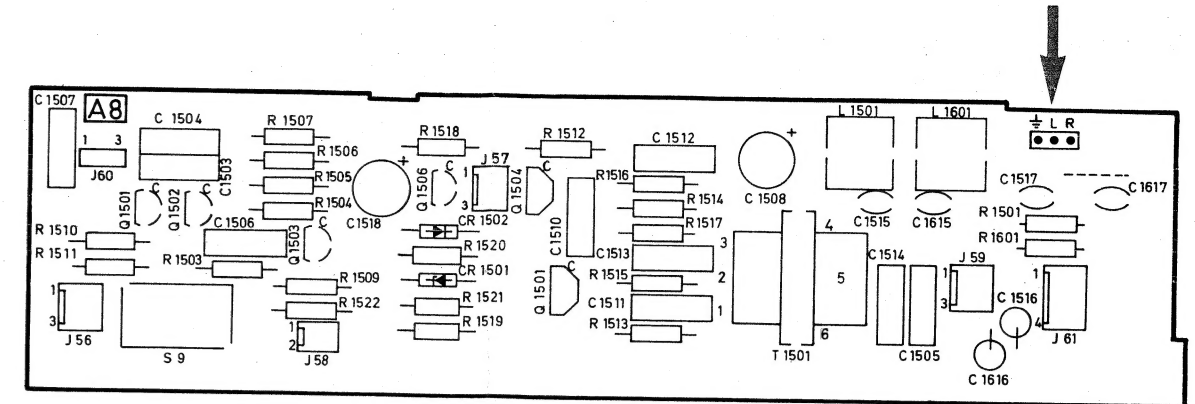
Weighted RMS:  $< 0.09\%$

Weighted peak:  $< 0.14\%$

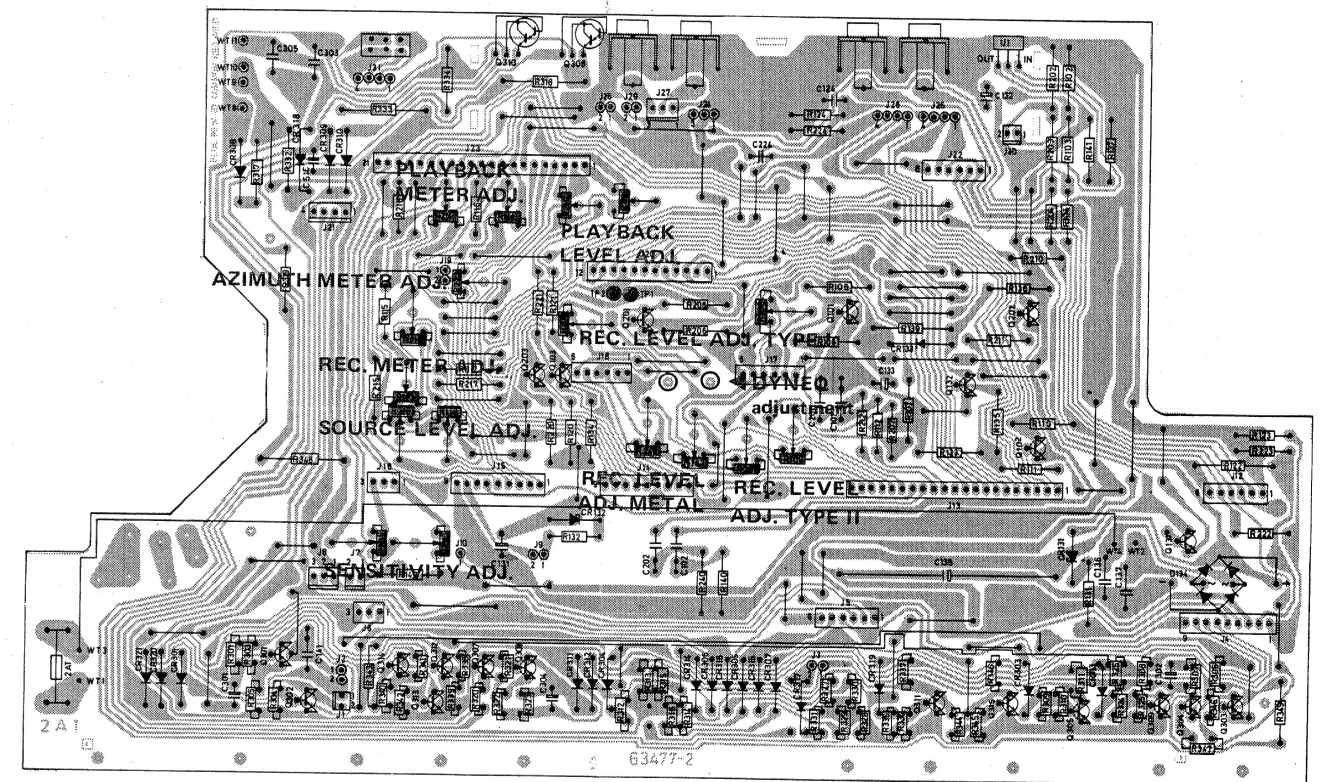
### Record/playback

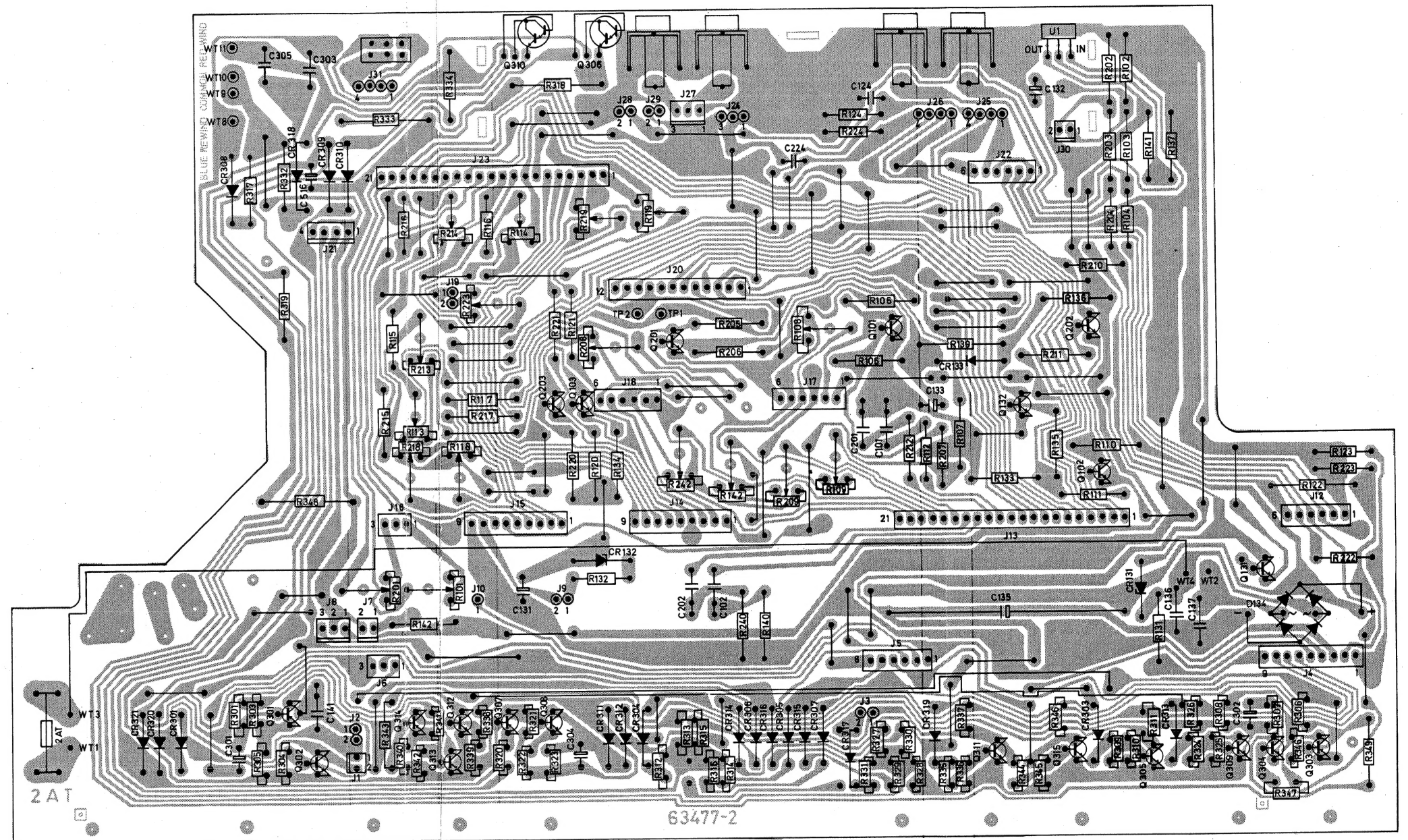
Use a Maxell C-60 UD cassette. Connect the wow and flutter meter generator to the INPUT sockets. Set the deck to Record and record for about half a minute. Wind back the cassette and set the deck to Play. Measure on the OUTPUT with wow and flutter meter:

Weighted RMS:  $< 0.12\%$



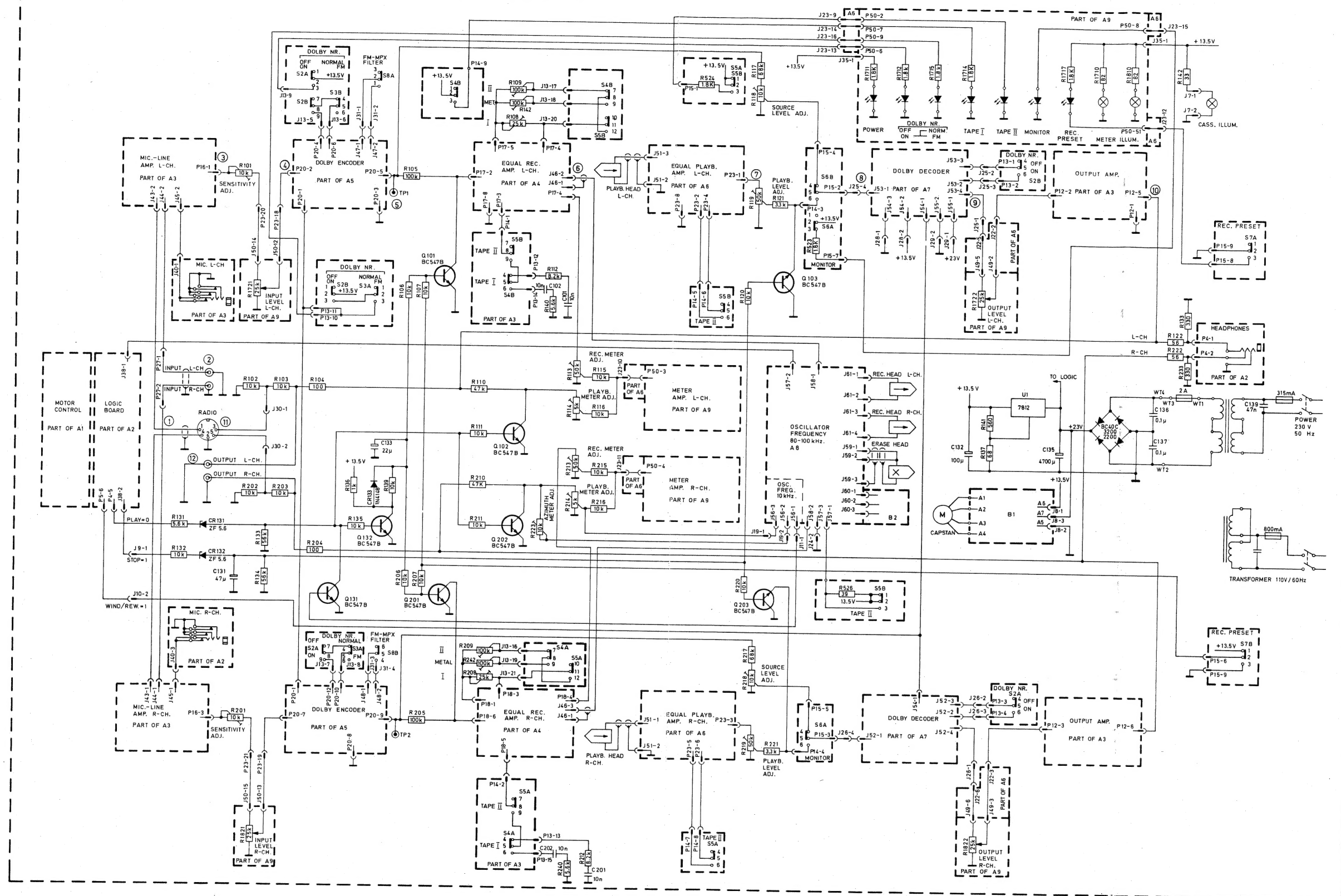
Oscillator measurement points, seen from the component side



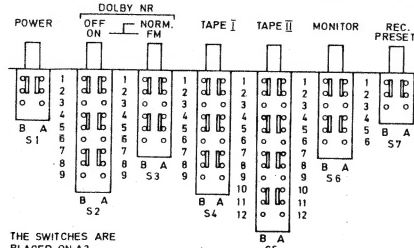


A1 MAIN

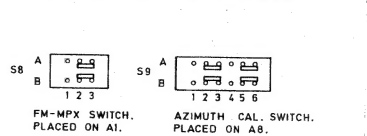
# A1 MAIN BOARD (NOTES 1-4)



THE SWITCHES ARE SEEN FROM THE SOLDER SIDE.



THE FM-MPX AND AZIMUTH CAL. SWITCHES ARE SEEN FROM THE FRONT SIDE.



## A1 MAIN

- NOTES:
1. UNLESS OTHERWISE SPECIFIED, RESISTANCE IN OHMS.
  2. ALL SWITCHES ARE SHOWN IN THE "POWER OFF" POSITION.
  3. LEFT CHANNEL COMPONENTS HAVE 101-130, RIGHT CHANNEL COMPONENTS HAVE 201-230. COMPONENTS COMMON FOR BOTH CHANNELS HAVE 131-199.
  4. LOGICAL LEVELS FROM LOGIC BOARD:  
J38-1, ONLY LOW IN RECORD.  
J4-5, ONLY LOW IN PLAY.  
J38-4, ONLY HIGH IN STOP.  
J5-6, ONLY HIGH IN WIND AND REWIND.  
LOW IS VOLTAGE BELOW 1.5V.  
HIGH IS VOLTAGE ABOVE 10V.

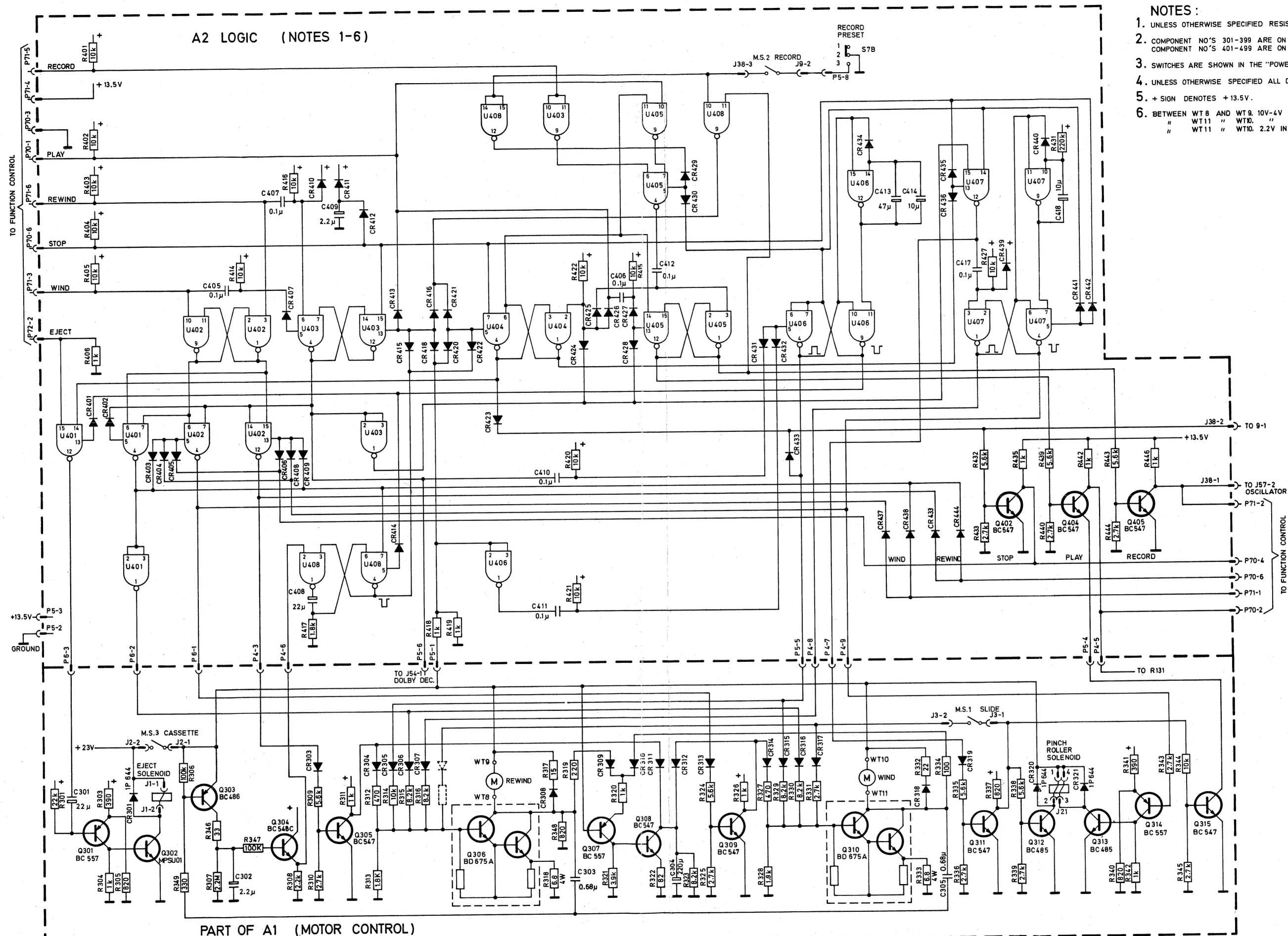
TABLE 1. SENSITIVITY OF AMPLIFIERS

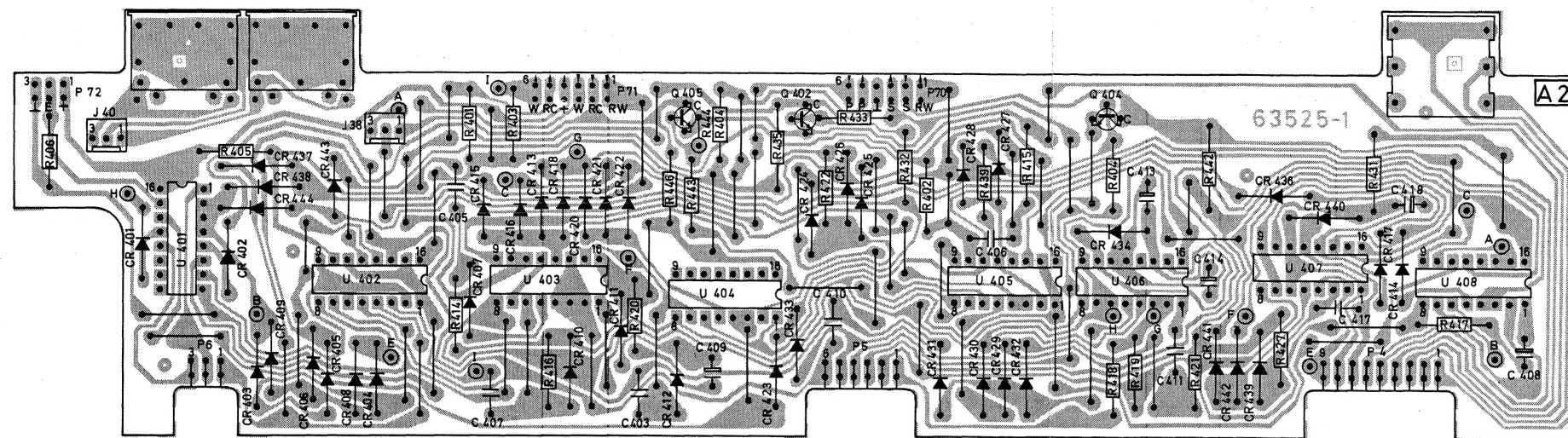
	SENSITIVITY AT 1000 Hz
1	8 mV
2	80 mV
3	25 mV
4	22 mV
5	775 mV
6	1.1 V
7	80 mV
8	40 mV
9	250 mV
10	1.5 V
11	775 mV
12	1.5 V



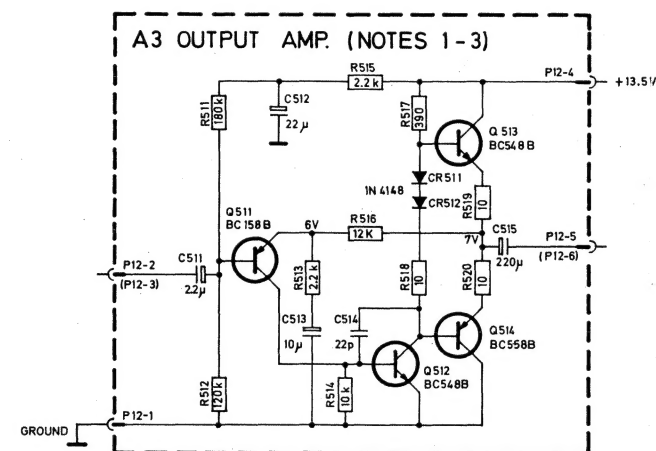
# NOTES:

1. UNLESS OTHERWISE SPECIFIED RESISTANCE IN OHMS.
2. COMPONENT NO'S 301-399 ARE ON ASSEMBLY 1(A1).  
COMPONENT NO'S 401-499 ARE ON ASSEMBLY 2(A2).
3. SWITCHES ARE SHOWN IN THE "POWER OFF" POSITION.
4. UNLESS OTHERWISE SPECIFIED ALL DIODES ARE 1N4148.
5. + SIGN DENOTES +13.5V.
6. BETWEEN WT8 AND WT9, 10V-4V IN REWIND MODE.  
" WT11 " WT10. " IN WIND MODE.  
" WT11 " WT10. 2.2V IN PLAY MODE.



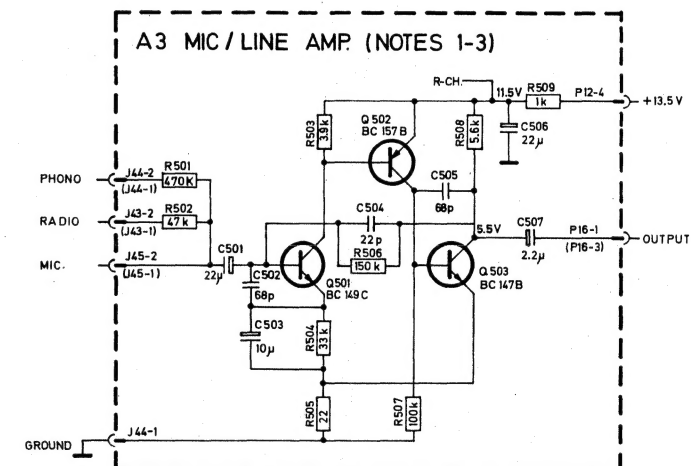


A2 LOGIC



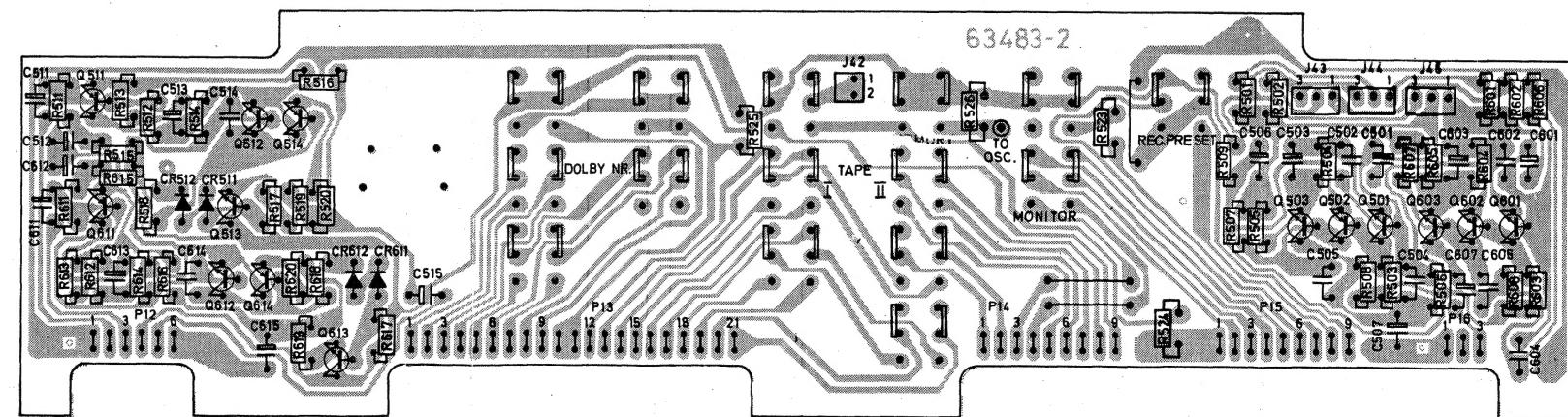
NOTES:

1. UNLESS OTHERWISE SPECIFIED RESISTANCE IN OHMS.
2. PLUG TERMINAL NO'S FOR THE R-CHANNEL ARE GIVEN IN BRACKETS BESIDE THE L-CHANNEL PLUG TERMINAL NO'S.
3. L-CHANNEL HAS 511-599, AND R-CHANNEL HAS 601-699 AS COMPONENT NO'S. WHEN REFERRING TO R-CHANNEL COMPONENT ADD 100 TO THE L-CHANNEL NO'S. (E.G. R511 OF THE L-CHANNEL HAS THE SAME VALUE AS R611 OF THE R-CHANNEL.)

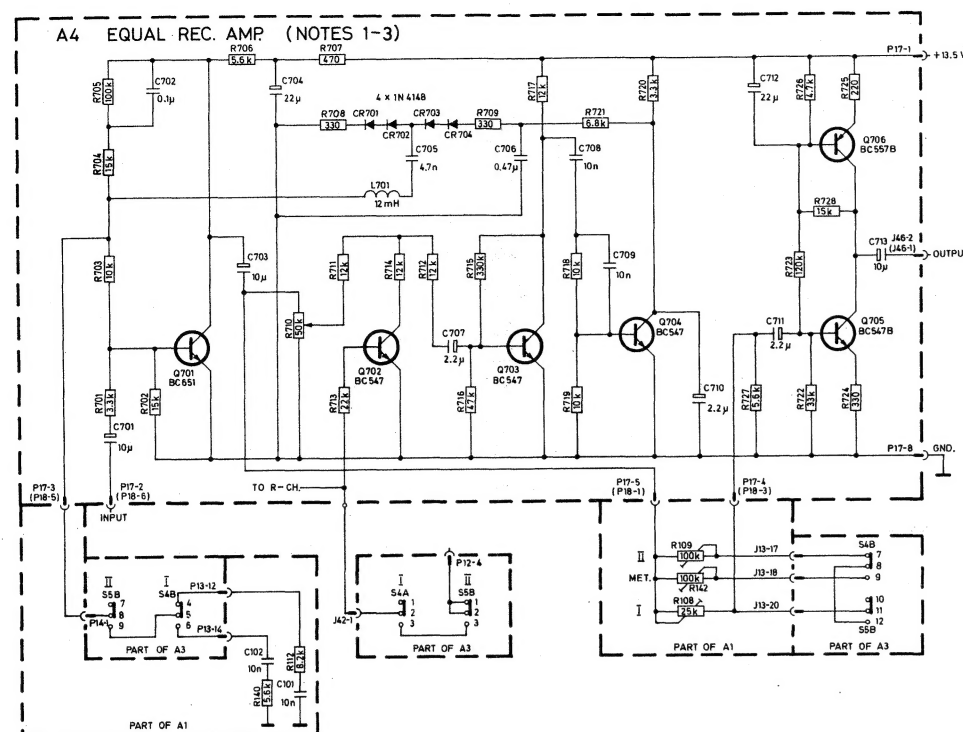


NOTES:

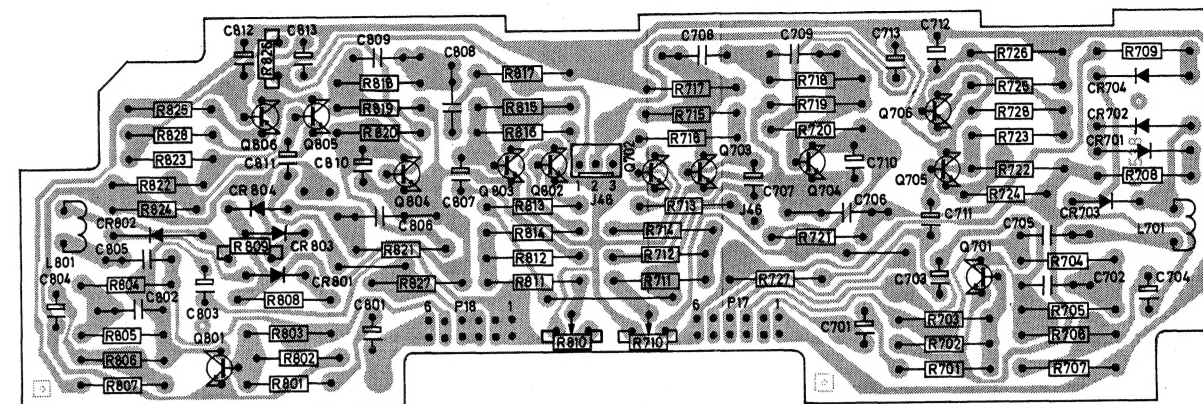
1. UNLESS OTHERWISE SPECIFIED RESISTANCE IN OHMS.
2. PLUG TERMINAL NO'S FOR THE R-CHANNEL ARE GIVEN IN BRACKETS BESIDE THE L-CHANNEL PLUG TERMINAL NO'S.
3. L-CHANNEL HAS 501-510, AND R-CHANNEL HAS 601-610 AS COMPONENT NO'S. WHEN REFERRING TO R-CHANNEL COMPONENT ADD 100 TO THE L-CHANNEL NO'S. (E.G. R501 OF THE L-CHANNEL HAS THE SAME VALUE AS R601 OF THE R-CHANNEL.)



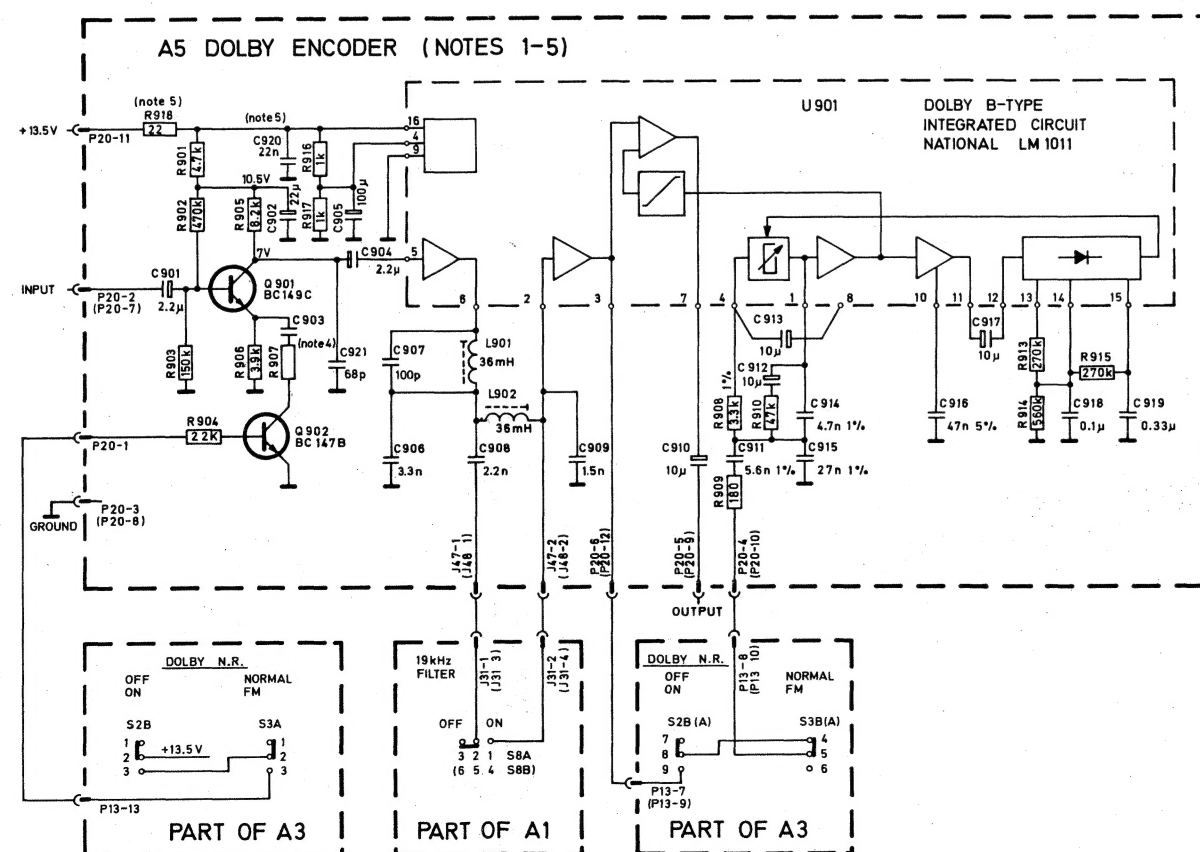
A3 OUTPUT MIC/LINE AMP.



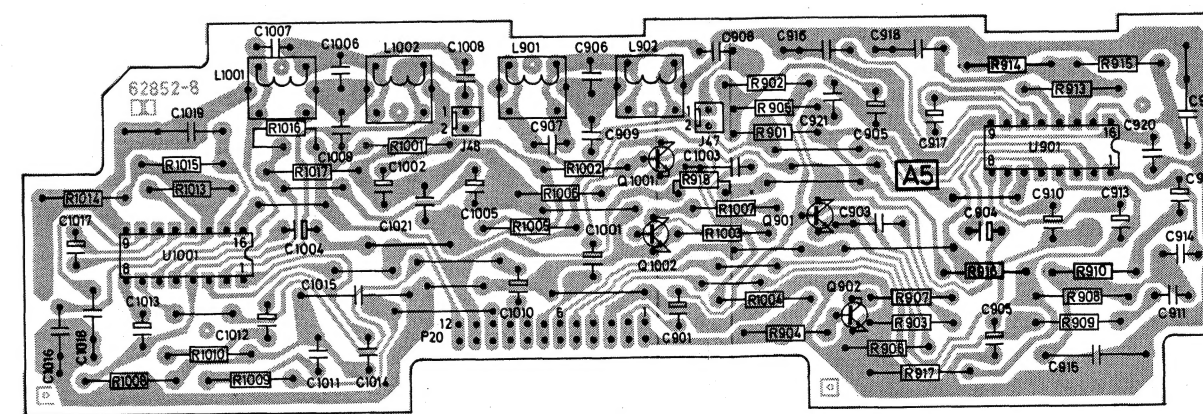
- NOTES:**
1. UNLESS OTHERWISE SPECIFIED, RESISTANCE IN OHMS.
  2. PLUG TERMINAL NO'S FOR THE R-CHANNEL ARE GIVEN IN BRACKETS BESIDE THE L-CHANNEL PLUG TERMINAL NO'S.
  3. L-CHANNEL HAS 701-799, AND R-CHANNEL HAS 801-899 AS COMPONENT NO'S. WHEN REFERRING TO R-CHANNEL COMPONENT ADD 100 TO THE L-CHANNEL NO'S. I.E.S. R701 OF THE L-CHANNEL HAS THE SAME VALUE AS R801 OF THE R-CH.



**A4 EQUAL REC. AMP.**

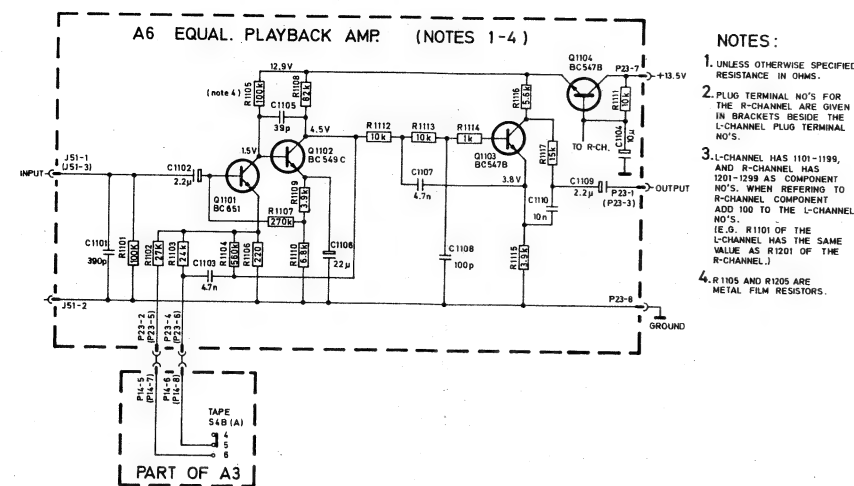


- NOTES:**
1. UNLESS OTHERWISE SPECIFIED RESISTANCE IN OHMS.
  2. PLUG TERMINAL NO'S FOR THE R-CHANNEL ARE GIVEN IN BRACKETS BESIDE THE L-CHANNEL PLUG TERMINAL NO'S.
  3. L-CHANNEL HAS 901-999, AND R-CHANNEL HAS 1001-1099 AS COMPONENT NO'S. WHEN REFERRING TO R-CHANNEL COMPONENT ADD 100 TO THE L-CHANNEL NO'S. (E.G. R901 OF THE L-CHANNEL HAS THE SAME VALUE AS R1001 OF THE R CHANNEL.)
  4. R907 = 2.2K, C903 = 15n GIVES  
a "5-25" DOLBY FM COMPENSATOR  
R907 = 3.9K, C903 = 12n GIVES  
a "50-25" DOLBY FM COMPENSATOR
  5. R913 AND C920 ONLY ON L-CHANNEL.

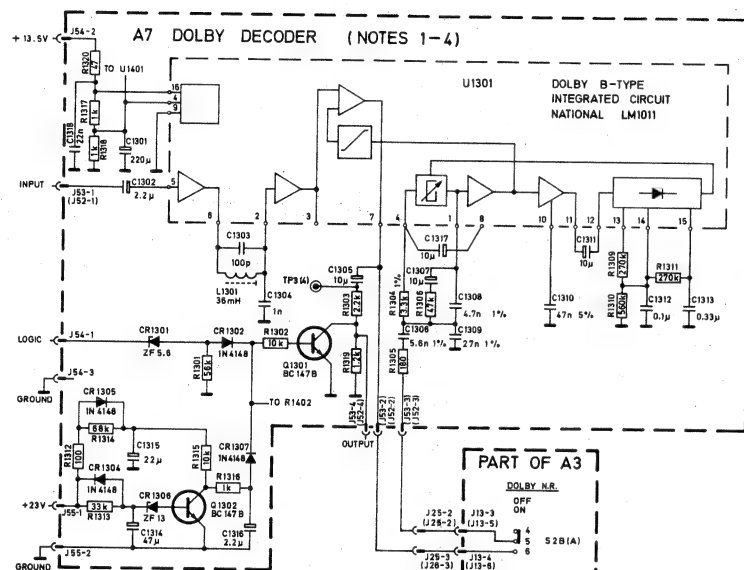
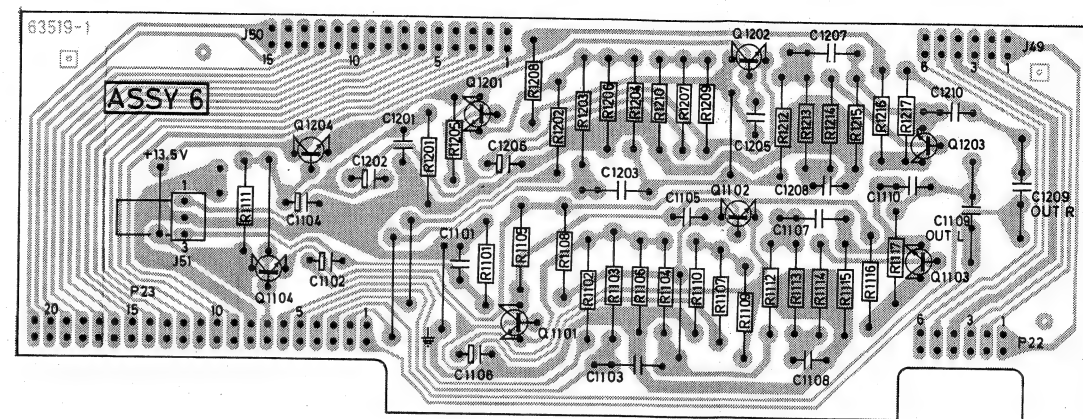


**A5 DOLBY ENCODER**

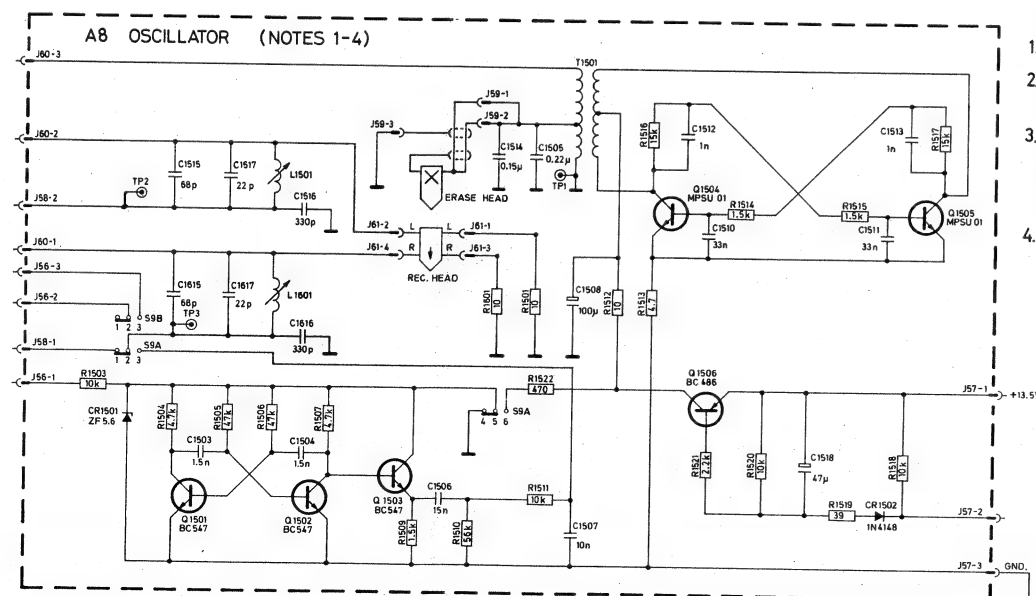
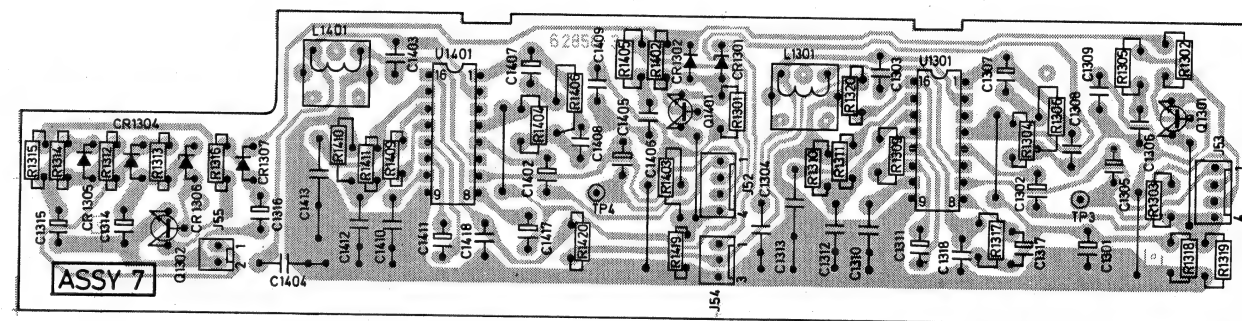




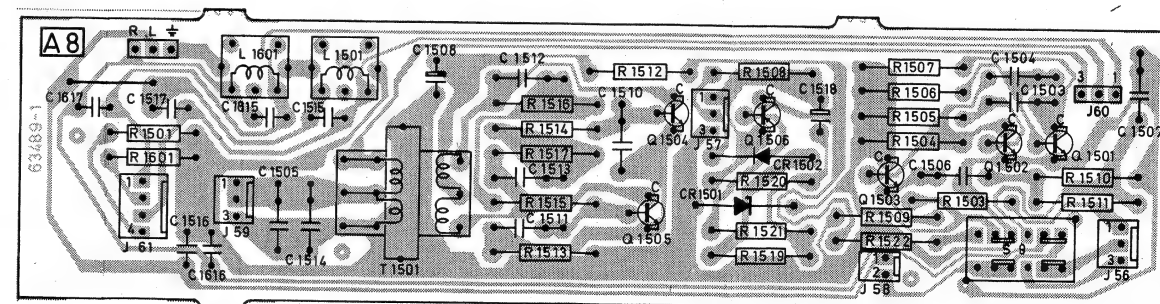
**A6 EQUAL PLAYBACK AMP.**

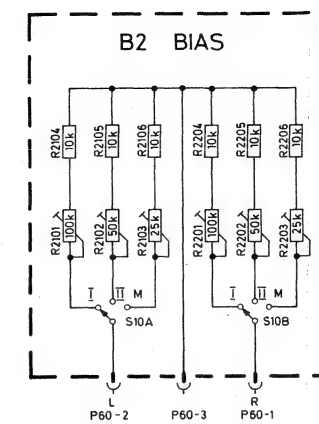
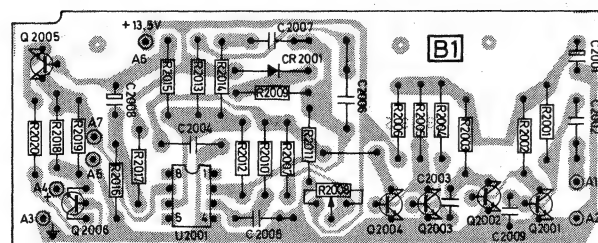
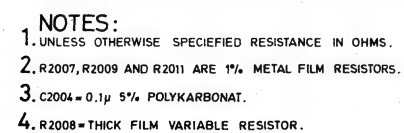
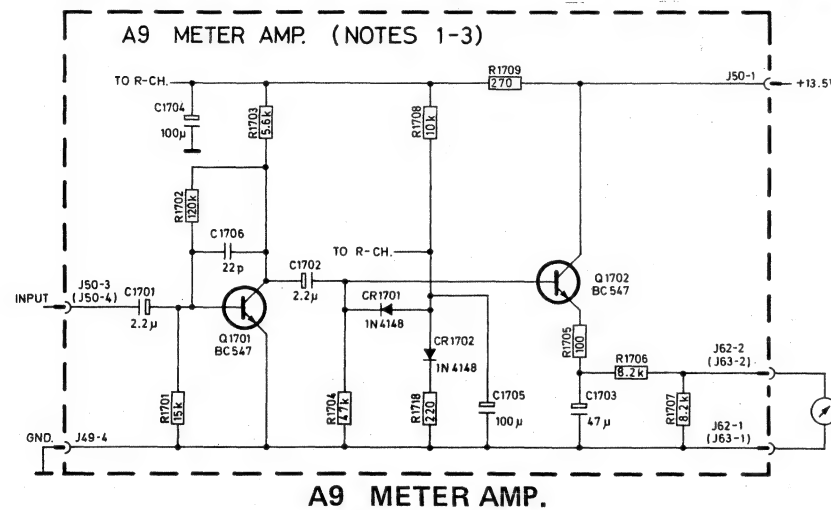


**A7 DOLBY DECODER**

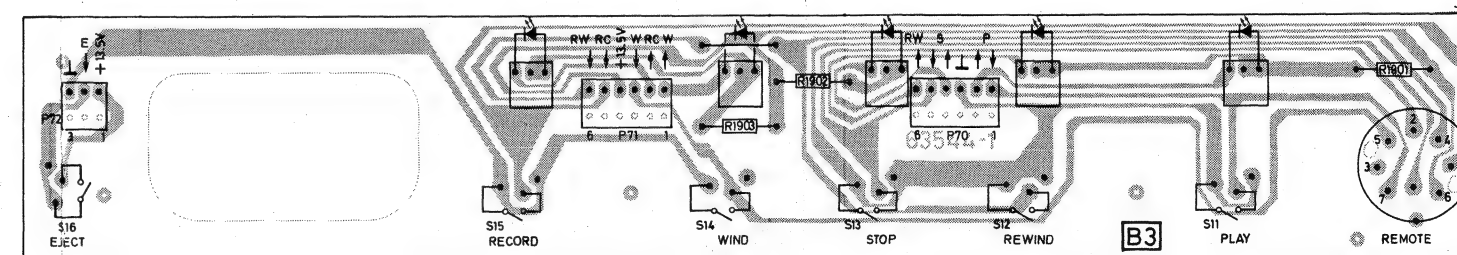
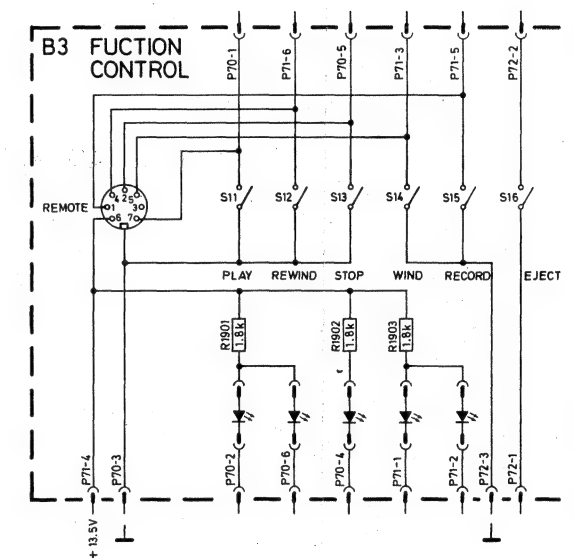
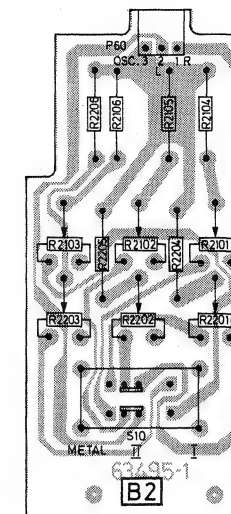


**A8 OSCILLATOR**





**B2 BIAS**



### B3 FUNCTION CONTROL



# TANDBERG

## TCD 440 A

# Illustrated Parts List

### Bestilling av deler

Ved alle henvendelser, vennligst oppgi apparatets type og serienummer.

Ved bestilling av deler, oppgi bestillingsnummer og beskrivelse.

### Bestillingsadresse

Kontakt nærmeste Tandberg-kontor eller:

Tandberg A/S

Sentral Delelager — Service

Postboks 53

N — 2007 KJELLER — Norge

Telefon: (02) 71 68 20

Telex: 18007 kurer n

### Ordering of spare parts

For all enquiries, please state the set's type and serial number.

When ordering, give the part's order number and description.

### Address

Contact your nearest Tandberg office or:

Tandberg A/S

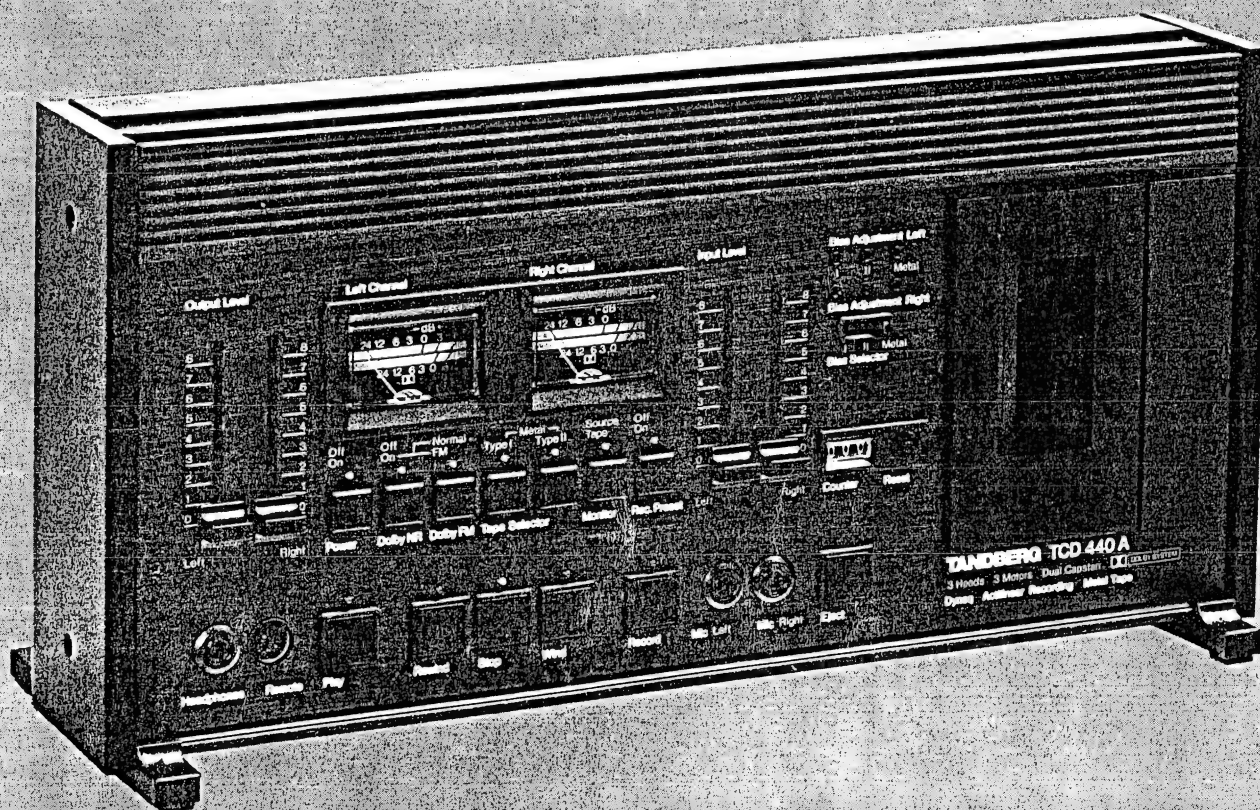
Spares Department

P.O. Box 53

N — 2007 KJELLER — Norway

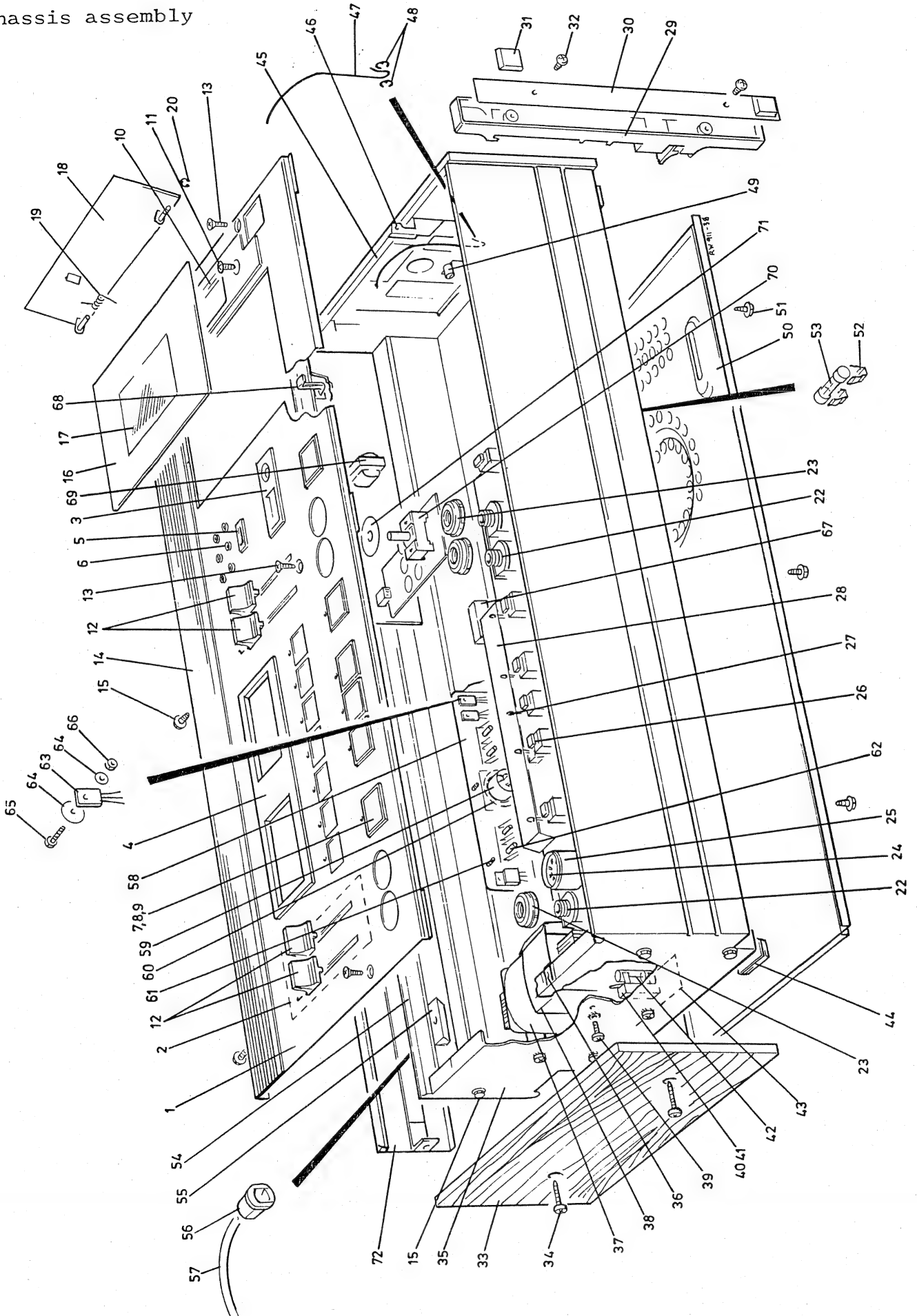
Telephone: (2) 71 68 20

Telex: 18007 kurer n



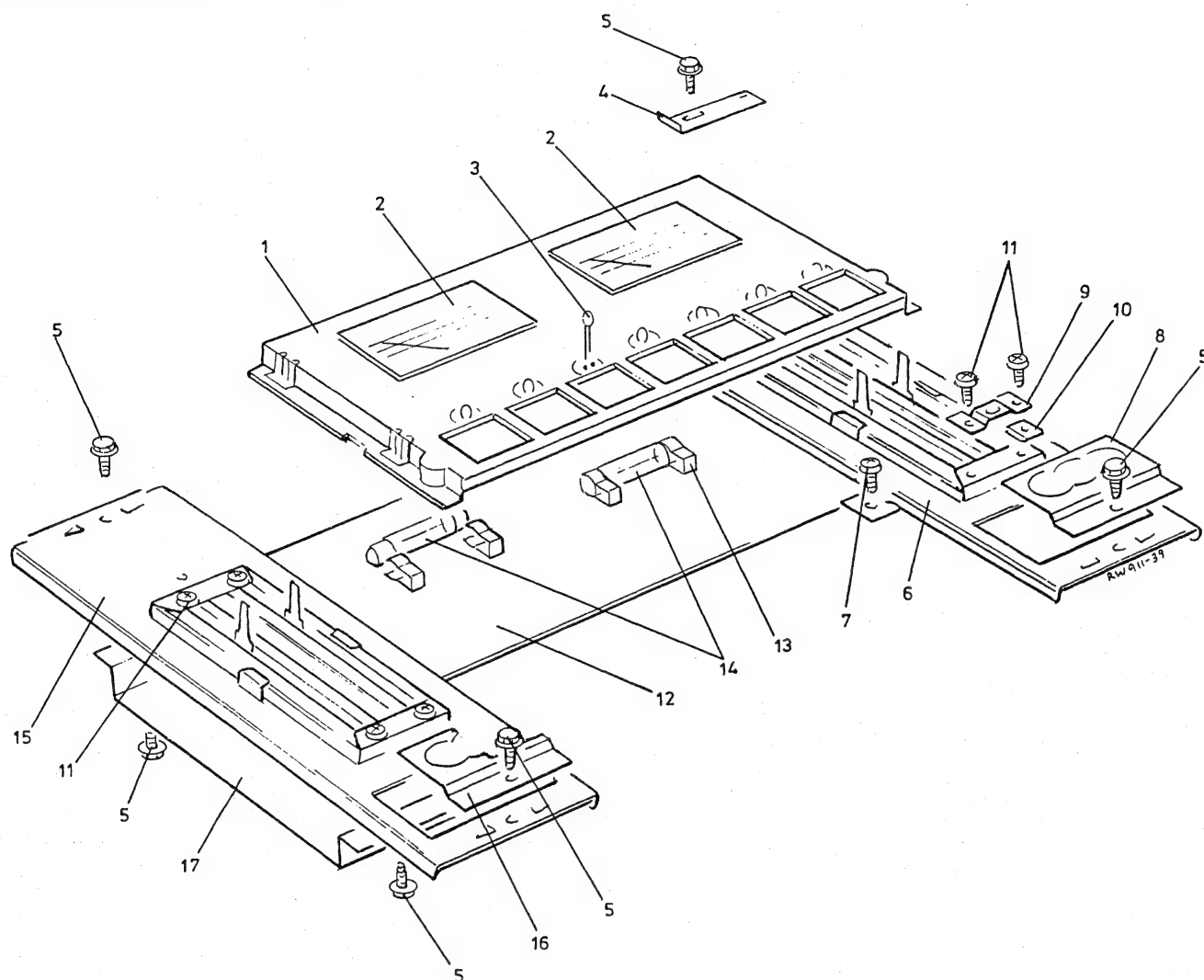
**TANDBERG** — The European Alternative

# Chassis assembly



SPECIFY THIS WHEN ORDERING				
Index	Ordering No.	Beskrivelse (merknader)	Description (notes)	Reference
1	* 995149	Sjassis-enhet Plate (lev. m/index 2-11)	Chassis assembly Plate, top (supplied with index 2-11)	INPUT LEVEL, OUTPUT LEVEL
2	292581	Plate	Mask, felt	
3	313191	Vindu	Window, counter, plastic	
4	374935	Ramme	Surround, meter, plastic	
5	368958	Ramme	Surround, switch, black	
6	375403	Hylse	Grommet, black plastic	
7	361215	Ramme	Surround, push button, plastic	
8	376732	Knapp	Button, push	
9	362860	Fjær	Spring	
10	346250	Ramme	Surround, plastic	
11	346840	Skrue	Screw, plate, 1/4" No. 4 flange hd, black	
12	994119	Knapp	Knob, black plastic, with spring	
13	234206	Skrue	Screw, plate, 3/8" No. 4 csk hd, black	
14	408691	Skinne	Plate, top	
15	309060	Skrue	Screw, plate, 1/4" No. 6 pan hd	
16	995150	Deksel	Cover	
17	367321	Vindu	Window, plastic	
18	995151	Lokk	Cover, with spindle	
19	345862	Fjær	Spring	
20	230542	Skive	Ring, circlip, 2.3 mm	
21	995146	Skinne	Plate, front	HEADPHONES, MIC L, MIC R
22	294420	Jack	Socket, jack, 3 pole 1/4"	
23	317372	Mutter	Nut	REMOTE
24	365955	Kontakt	Socket, 7 pin DIN 180 degrees	
25	365596	Hylse	Surround, DIN socket, plastic	supplied in matched pairs
26	364828	Vender	Switch, touch	
27	352665	Diode	Diode, light emitting, red	
28	*	Plate	Sheet, card	
29	995148	Fot (lev. m/index 30-32)	Foot, pair (supplied with index 30-32)	
30	*	Plate	Plate	
31	324297	Fot	Foot, rubber	
32	309693	Skrue	Screw, plate, 1/4" No. 4 flange hd	
33	334878A	Kassett	Panel, rosewood	
	371229	Kassett	Panel, black	
34	262984	Skrue	Screw, plate, 5/8" No. 6 pan hd, black	
35	309599C	Plate	Plate, side wall, left	
36	272739	Mutter	Nut, plate	
37	407520	Transformator	Transformer	
38	373577B	Plate	Cover, isolation	
39	346854	Skrue	Screw, 3.5 x 6.3 mm hex hd, with collar	
40	357399	Holder	Holder, fuse	
41	340813	Skrue	Screw, plate, 1/4" No. 2 pan hd	
42	270526	Sikring	Fuse, 800 mA, 5 x 20 mm, slow	115 V
	279952	Sikring	Fuse, 315 mA, 5 x 20 mm, slow	230 V
43	290211	Plåte	Plate, isolation	230 V 115 V
44	227949	Fot	Foot, rubber	
45	349390	Plate	Plate, side wall, right	
46	(lev. m/index 46-49)	(supplied with index 46-49)	(supplied with index 46-49)	
46	349964	Brakett	Bracket, cover	
47	347543	Fjær	Spring	
48	239651	Skive	Ring, circlip, 3.2 mm	
49	351581	Strømpe	Sleeve, rubber	
50	319448A	Plate	Cover, bottom	
51	297925	Skrue	Screw, plate, 5/16" No. 6 flnge hd, black	
52	277509	Holder	Holder, fuse	
53	265736	Sikring	Fuse, 2 A, 5 x 20 mm, slow	230 V
	289629	Sikring	Fuse, 2 A, 1 1/4" x 1/4"	115 V
54	995147	Skinne	Plate, rear wall	
55	319721	Brakett	Bracket, frame	
56	281454	Tube	Tube, cable, power	
57	357630	Ledning	Cable, power, with Europlug	
	346388	Ledning	Cable, power	U.S.A. version
58	348413	Brakett	Bracket	RADIO
59	242244	Kontakt	Socket, 5 pin DIN 180 degrees	
60	282645	Ring	Ring, rubber	INPUT, OUTPUT
61	290842	Skrue	Screw, 3 x 6 mm pan hd	
62	283773	Kontakt	Socket, phono	MPX FILTER
63	*	Transistor	Transistor	
64	*	Skive (lev. m/index 63)	Washer (supplied with index 63)	BIAS SELECTOR
65	271367	Mutter	Nut, 2.6 mm	
66	296417	Skrue	Screw, 2.6 x 8 mm pan hd	BIAS SELECTOR
67	335095	Vender	Switch, slide	
68	300612A	Klammer	Guide, plastic	BIAS SELECTOR
69	980379	Transformator	Transformer, oscillator	
70	365682	Vender	Switch, toggle	BIAS SELECTOR
71	374834	Skive	Ring, felt	
72	343471	Deksel	Cover, rear	

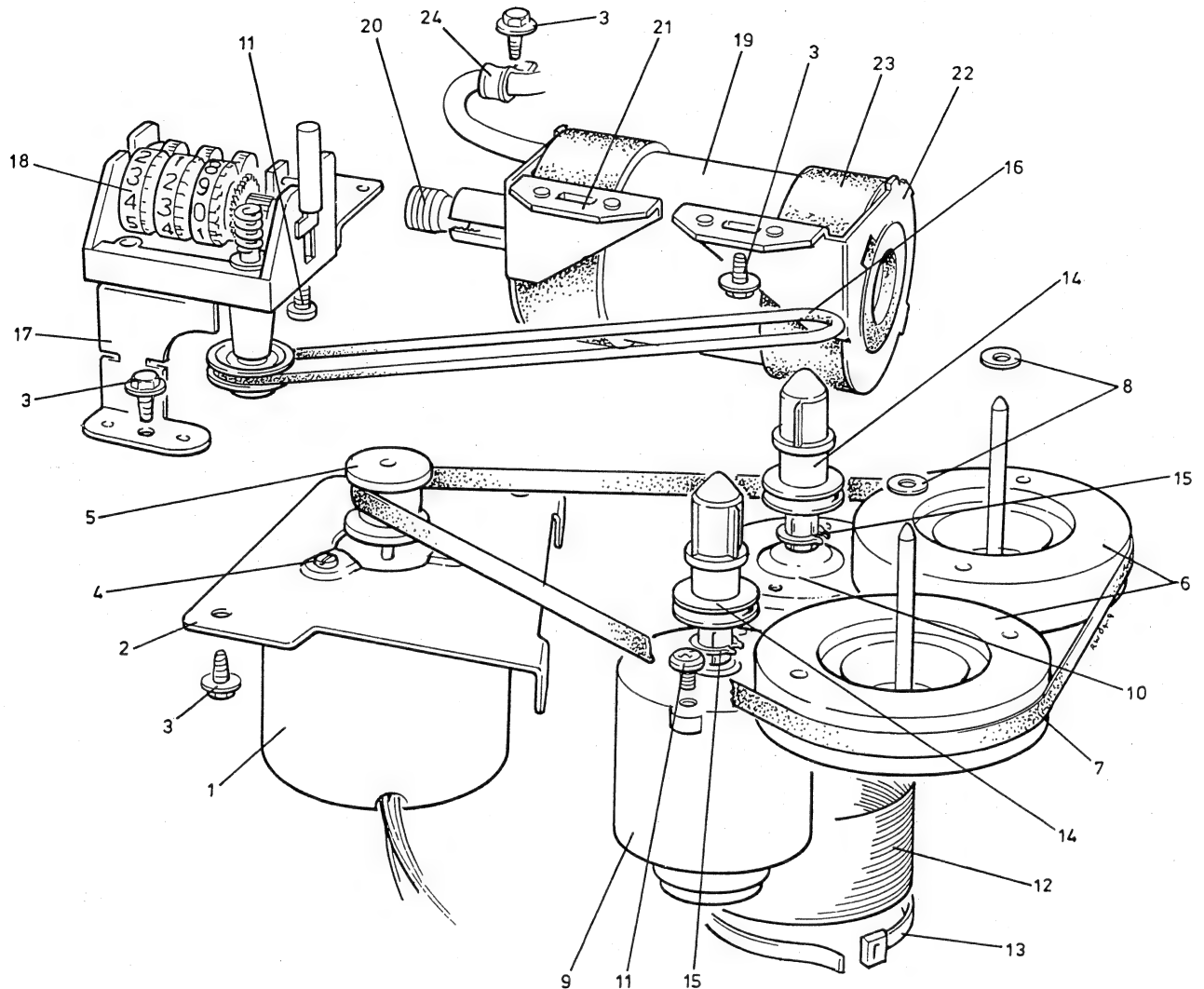
# Meter board assembly



SPECIFY THIS WHEN ORDERING			Description (notes)	Reference
Index	Ordering No.	Beskrivelse (merknader)		
	*	Instrumentkort-enhet	Meter board assembly	A9
1	401493	Holder	Holder, meter	
2	402125	Instrument	Meter	
3	316531	Diode	Diode, light emitting	
4	347659	Stag	Plate	
5	346854	Skrue	Screw, 3.5 x 6.3 mm hex hd, with collar	
6	315734A	Ramme	Frame, potentiometer	
7	329598	Skrue	Screw, 3/16" No. 4 pan hd	
8	315382	Brakett	Bracket, microphone	
9	317063	Brakett	Bracket	
10	272739	Mutter	Nut, plate	
11	269255	Skrue	Screw, 3 x 4 mm pan hd	
12	995163	Kort	Board, meter	
13	330195	Holder	Holder	
14	333909	Lampe	Bulb, 10 V 50 mA	
15	317415A	Ramme	Frame, potentiometer	
16	995166	Brakett	Bracket, headphone	
17	995125	Skjerm	Screen, with insulation	

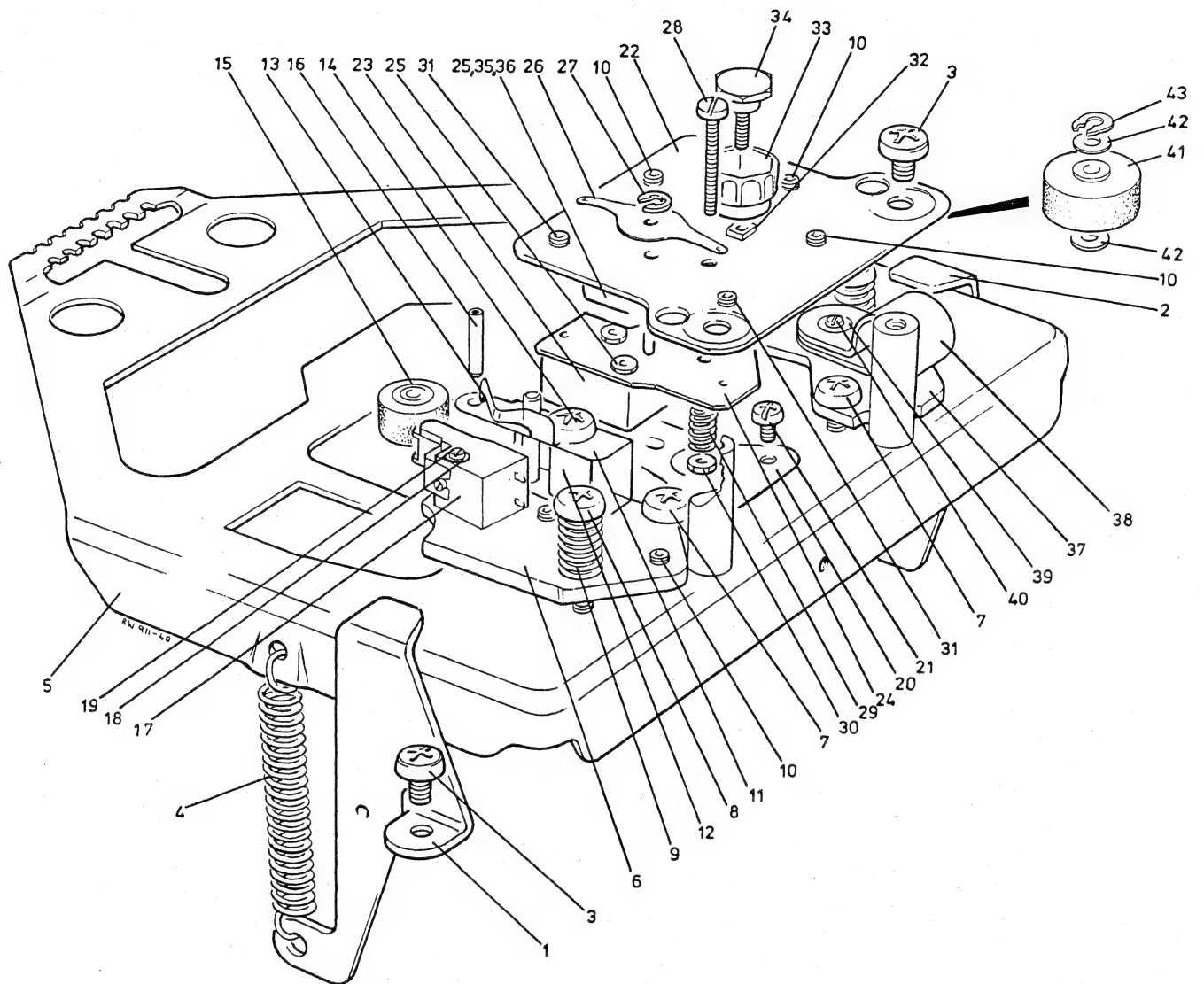


# Drive assembly



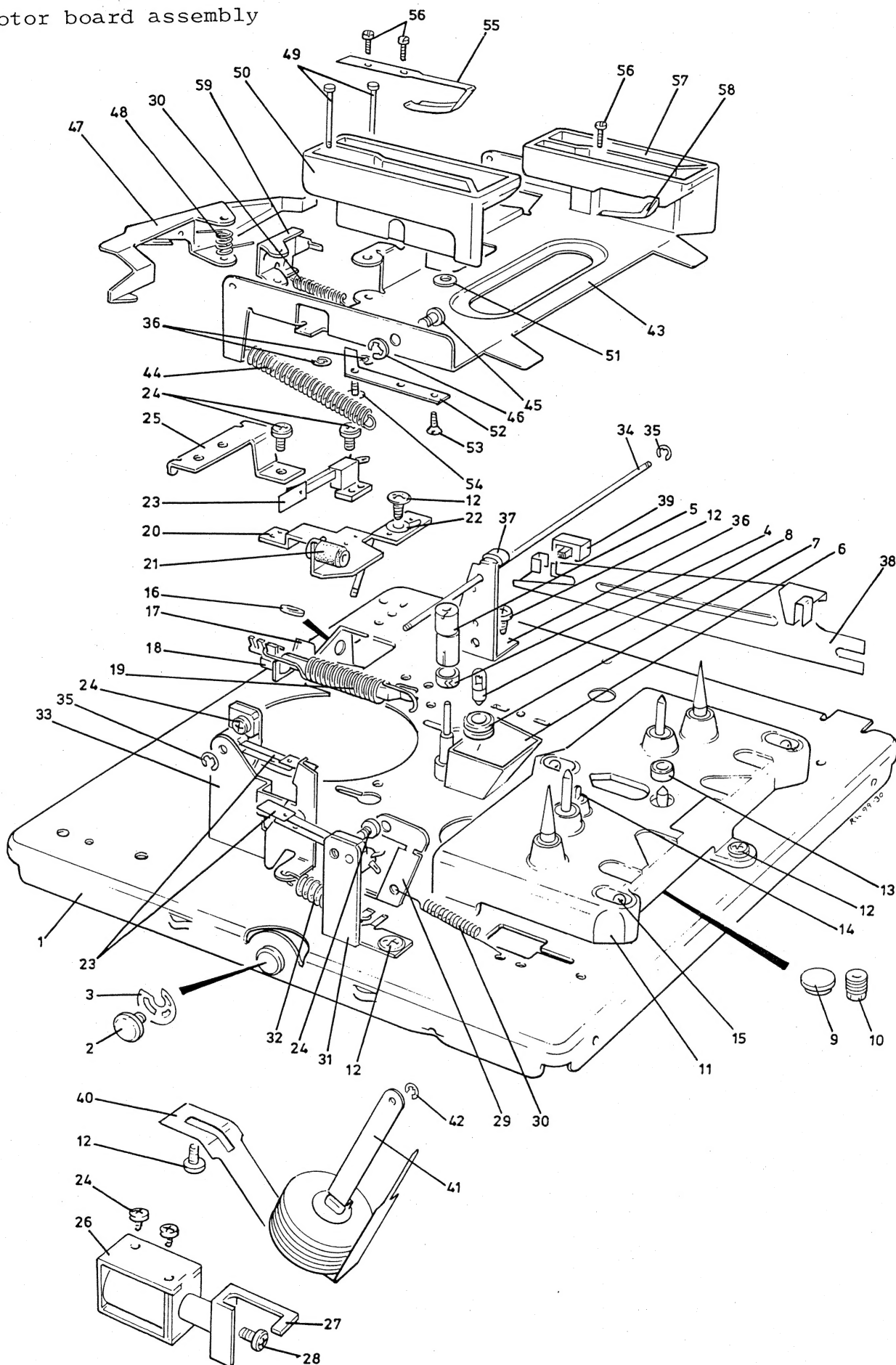
SPECIFY THIS WHEN ORDERING				
Index	Ordering No.	Beskrivelse (merknader)	Description (notes)	Reference
	*	Fremdrifts-enhet	Drive assembly	
1	400092	Motor	Motor	Capstan
2	377084	Plate	Plate, mounting, capstan motor	
3	346854	Skrue	Screw, 3.5 x 6.3 mm hex hd, with collar	
4	403174	Skrue	Screw, 2.6 x 3.5 mm pan hd	
5	375051	Hjul	Pulley, drive	
6	994111	Svinghjul	Flywheel	
		(parvis tilpasset, og med indeks 7)	(supplied in matched pairs and with index 7)	
7	994183	Ring	Belt, drive, rubber	Supply Take-up
8	285369	Skive	Washer, 6 x 2.7 x 0.5 mm, plastic	
9	375086	Motor	Motor, non-cogging	
10	284823	Motor	Motor	
11	269255	Skrue	Screw, 3 x 4 mm pan hd	
12	306775	Skjerm	Screen	
13	319506	Bånd	Strap, plastic	L1, L2, Start solenoid
14	994113	Aksel	Spindle, tape reel	
		(lev. m/index 15)	(supplied with index 15)	
15	213826	Ring	Ring, retaining, external, 6 mm	
16	309600	Ring	Belt, drive, rubber	
17	379117	Brakett	Bracket, support, counter	
18	280132	Teller	Counter	
19	994184	Trekkmagnet	Solenoid	
20	264212A	Skrue	Screw, nylon	
21	995101	Klammer	Bracket	
22	302300	Klammer	Bracket	
23	300942A	Hylse	Housing, rubber	
24	202684	Klammer	Clamp, cable, nylon, 5 mm	

# Head plate assembly



SPECIFY THIS WHEN ORDERING				Reference
Index	Ordering No.	Beskrivelse (merknader)	Description (notes)	
1	*	Hodebro-enhet	Head plate assmbly	
2	304333A	Arm	Bracket, guide, head	
3	345676	Arm	Bracket, guide, head plate, right	
4	269255	Skrue	Screw, 3 x 4 mm pan hd	
5	287732	Fjær	Spring	
6	*	Plate	Plate, mounting, head	
7	348061	Plate	Plate, pressure, left	
8	292523	Skrue	Screw, 3 x 8 mm pan hd	
9	293852	Skrue	Screw, 3 x 15 mm pan hd	
10	240406A	Fjær	Spring	
11	890002	Skrue	Screw, set, 3 x 7 mm	
12	342307	Bøyle	Bracket, U-shaped, pressure roller	
13	337479A	Hylse	Spacer	
14	346997	Fjær	Spring	
15	292171	Skrue	Screw, 3 x 12 mm pan hd	
16	333126	Valse	Roller, pressure, rubber	
17	341553	Aksel	Spindle	
18	716481	Hode	Head, erase	
19	356947	Skive	Washer, 1.4 mm	
20	340281	Skrue	Screw, 1.7 x 12 mm pan hd	
21	285699A	Fjær	Spring, flat	
22	294520	Skrue	Screw, 2.3 x 3 mm pan hd	
	352608	Plate	Plate, mounting, head, with nut	
		(lev. m/index 32)	(supplied with index 32)	
23	715546	Hode	Head, record, with plate	
		(lev. m/index 24,25)	(supplied with index 24 and 25)	
24	349742	Plate	Plate, mounting, head	
25	336517	Mutter	Nut	
26	339433	Fjær	Spring	
27	234256	Skive	Ring, circlip, 1.9 mm	
28	326660	Skrue	Screw, 2 x 15 mm pan hd	
29	240406A	Fjær	Spring	
30	335755A	Mutter	Nut, 2 mm	
31	890001	Skrue	Screw, set, 3 x 6 mm	
32	341395	Hylse	Nut, plastic	
33	347458	Hylse	Knob, black plastic	
34	347385	Skrue	Screw	
35	716480	Hode	Head, playback, with plate	
		(lev. m/index 25,36)	(supplied with index 25 and 36)	
36	337400	Plate	Plate, mounting, head	
37	317042	Plate	Plate, pressure, right	
38	219221	Klammer	Clamp, cable, nylon, 7 mm	
39	355934	Skive	Washer, 5 x 2.2 x 0.3 mm	
40	292487	Skrue	Screw, 2 x 5 mm pan hu	
41	860004A	Hjul	Roller, pressure, rubber	
42	244377	Skive	Washer, 6 x 2.5 x 0.3 mm	
43	212145	Ring	Ring, retaining, external, 2.5 mm	

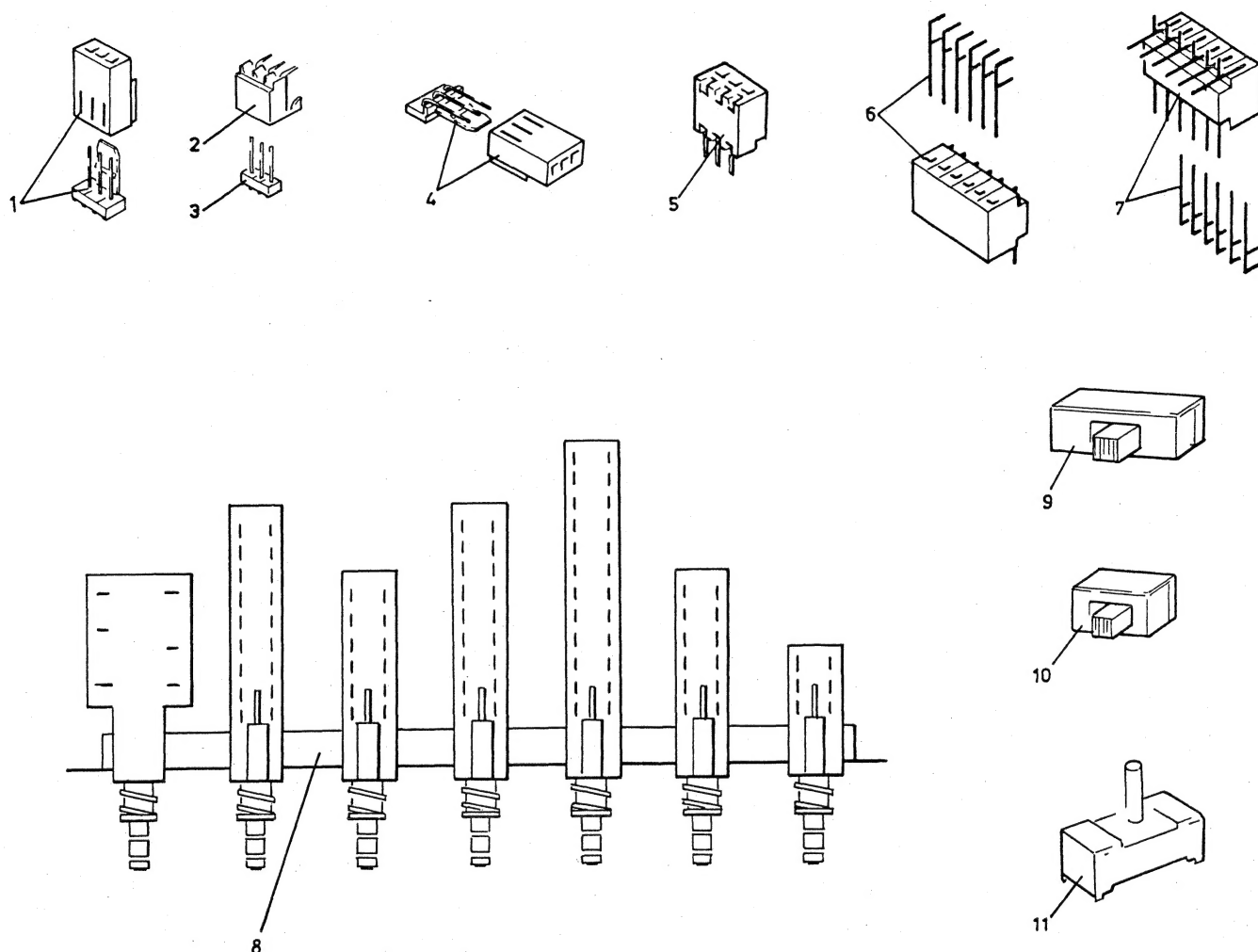
# Motor board assembly





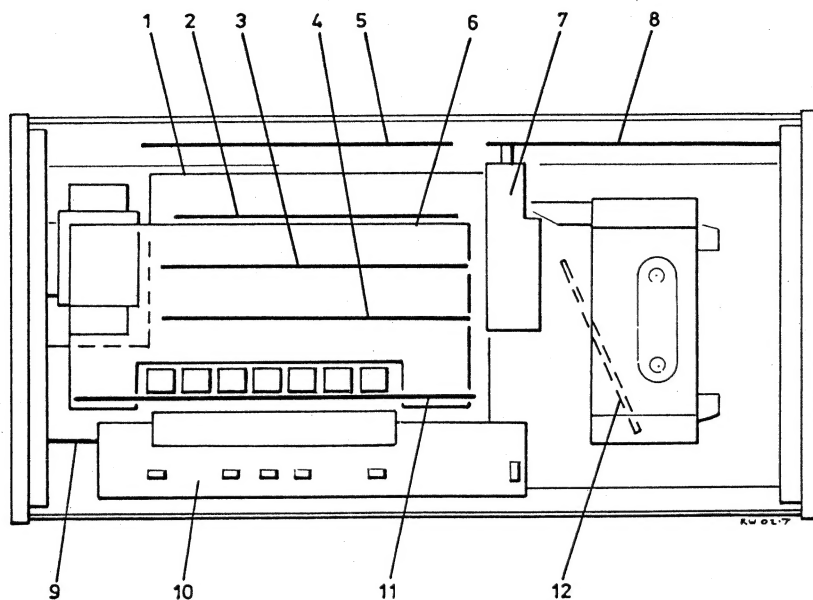
SPECIFY THIS WHEN ORDERING				Reference
Index	Ordering No.	Beskrivelse (merknader)	Description (notes)	
1	*	Motorplate-enhet	Motor board assembly	First version Second version
2	995145	Plate	Plate, support, motor	
3	302020	Aksel	Post, pivot	
4	245649	Skive	Ring, circlip, 4 mm	
5	229824	Klips	Clip	
6	301395	Hylse	Cam, nylon	
7	301747A	Skjerm	Reflector, illumination	
8	285720	Tube	Grommet, rubber	
9	995152	Lampe	Bulb, 14 V 80 mA, with leads	
10	355014	Plate	Disc, thrust bearing	
11	371351	Skrue	Screw, nylon	
12	994117	Plate	Plate, mounting, flywheel	
13	346854	Skrue	Screw, 3.5 x 6.3 mm hex hd, with collar	
14	207173	Lager	Bearing, 2.5 mm	
15	304326	Plugg	Guide, cassette	
16	303622	Kule	Ball, bearing	
17	217152	Skive	Washer, 9 x 4.3 x 0.8 mm	
18	301323	Arm	Lever, solenoid	
19	344132	Arm	Arm	
20	304685	Fjær	Spring	
21	994112	Brakett	Bracket, with spindle	
22	202303	Tube	Tube, rubber	
23	223675	Loddeøre	Tag, solder, 4.2 mm	
24	284119	Vender	Switch, leaf, n/o	MS1 cassette, MS2 slide MS3 record
25	269255	Skrue	Screw, 3 x 4 mm pan hd	Eject
26	318392	Klammer	Clamp	
27	354001	Magnet	Solenoid	
28	351732	Arm	Arm, solenoid, plastic	
29	290842	Skrue	Screw, 3 x 6 mm pan hd	
30	353140A	Arm	Lever	
31	293824	Fjær	Spring	
32	303004	Brakett	Bracket, support, leaf switch	
33	313183	Fjær	Spring	
34	346732	Brakett	Bracket, support, cassette drawer	
35	301668	Aksel	Spindle	S9
36	237970	Skive	Ring, circlip, 1.5 mm	
37	347357A	Brakett	Bracket, support, cassette drawer	
38	351581	Strømpe	Sleeve, rubber	
39	345668	Arm	Arm, switch	
40	348887	Vender	Switch, slide	
41	995134	Belg	Bellows, with flat spring	
42	360129	Arm	Arm, bellows	
43	234256	Skive	Ring, circlip, 1.9 mm	
44	300490A	Brakett	Bracket, cassette drawer	
45	289413	Fjær	Spring	
46	304678	Tapp	Post, pivot	
47	230542	Skive	Ring, circlip, 2.3 mm	
48	287380A	Arm	Arm	
49	365130	Fjær	Spring	
50	301316	Aksel	Post, pivot	
51	994120	Styring	Guide, cassette, left	
52	215320	Skive	Washer, 7 x 3.2 x 0.5 mm	
53	995135	Brakett	Bracket, bellows	
54	234206	Skrue	Screw, plate, 3/8" No. 4 csk hd, black	
55	292875	Skrue	Screw, plate, 3/8" No. 4 flange hd	
56	291791	Fjær	Spring, cassette drawer, left	
57	299606	Skrue	Screw, plate, 3/16" No. 2 pan hd	
58	994121	Styring	Guide, cassette, right	
59	290110	Fjær	Spring, cassette drawer, right	
	304103	Arm	Arm	

# Connectors and switches



SPECIFY THIS WHEN ORDERING				Reference
Index	Ordering No.	Beskrivelse (merknader)	Description (notes)	
1	*	Kontakter	Connectors	POWER, DOLBY NR, DOLBY FM TAPE SELECTOR, MONITOR, REC.PRESET S9 S8, MPX FILTER BIAS SELECTOR
	995818	Kontakt	Connector, 2 pole, small	
	995819	Kontakt	Connector, 3 pole, small	
	995820	Kontakt	Connector, 4 pole, small	
	340806	Kontakt	Connector, fixed, 3 pole, small	
2	316575	Plint	Connector, fixed, 3 pole, small	
3	996301	Kontakt	Connector, 3 pole, horizontal, small	
4	318320	Kontakt	Connector, fixed, 3 pole	
5	996302	Kontakt	Connector, 3 pole, black	
6	996303	Kontakt	Connector, 6 pole, black	
7	996304	Kontakt	Connector, 3 pole, black	
	996305	Kontakt	Connector, 6 pole, black	
8	*	Vendere	Switches	
	408339	Vender	Switch, push	
9	348887	Vender	Switch, slide	
10	335095	Vender	Switch, slide	
11	365682	Vender	Switch, toggle	

## Printed circuit boards



Index	SPECIFY THIS WHEN ORDERING		Description (notes)	Reference
	Ordering No.	Beskrivelse (merknader)		
	*	TK plater	Printed circuit boards	
1	995155	Kort	Board, mother	A1
2	995160	Kort	Board, playback amplifier	A6
3	995156	Kort	Board, Dolby encoder	A5
4	995158	Kort	Board, record amplifier	A4
5	995165	Kort	Board, Dolby decoder	A7
6	995163	Kort	Board, fader	A9
7	995154	Kort	Board, bias	B2
8	995157	Kort	Board, oscillator	A8
9	995161	Kort	Board, logic	A2
10	995162	Kort	Board, function control	B3
11	995159	Kort	Board, switch	A3
12	995153	Kort	Board, motor control	B1